

## 33% reduction in fuel bill of a heat treatment MSME unit through Energy Efficiency Measures

### Background

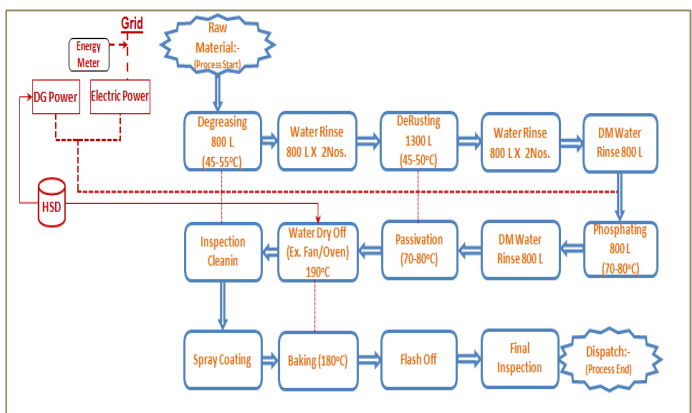
Faridabad is a mixed cluster in Haryana having over 12000 MSMEs majorly manufacturing various kinds of automobile parts, sheet metal components and fabrics. There are majorly 15 industrial segments in the cluster with a high range of products from soaps to tractors.

### Unit Profile

M/s ABC is an MSME unit engaged in manufacturing powder coating job work. Total Energy bill of the unit was Rs.18.40 lakh per annum which was around 8% of total turnover. About 71 % of the unit's energy bill was on account of HSD-Process, 15% accounted for HSD-DG and remaining 15% accounted for Grid electricity.

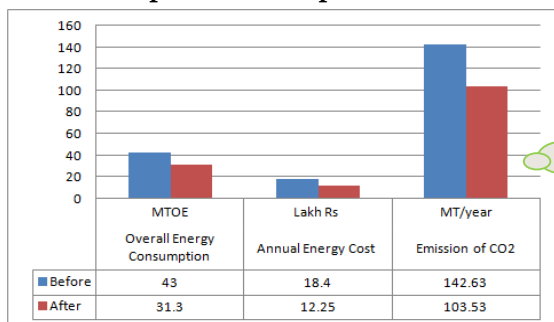
### Process description

The manufacturing process involves the loading of raw material (auto metallic parts) in baskets for their transportation from one tank to another followed by passing them through processes like degreasing, derusting and phosphating/passivation. Each step is followed by water rinsing. After passivation and water rinsing, components are dried off and goes for inspection. . The product after inspection hanged in movable trolley where it was powder coated with spray gun. These powder coated item goes for heat treatment in oven at 200°C. After heat treatment it is cleaned and inspected for quality. After quality testing finished product packed and stored for dispatch.



HSD and Grid Electricity were used to operate major energy consuming equipments in the unit i.e. air compressors, HVAC, plant machinery and other utilities i.e. pumps, motors associated with equipments, and lighting.

### Overall Impact - Post implementation



**Overall Impact**  
33% reduction in Total Energy bill (i.e. savings of INR 6 lakh p.a.) Simple payback of 17 months

*This case study has been prepared under WB GEF Project titled "Financing Energy Efficiency at MSMEs in India". The project aims to identify, design & implement Energy Efficiency (EE) solutions in 500 MSMEs in 5 clusters with potential of EE investment of more than Rs. 100 crore and reduction in GHG emissions equivalent to 1.2 million tonne CO<sub>2</sub>. This project is being co-implemented by Small Industries Development Bank of India (SIDBI) and Bureau of Energy Efficiency (BEE).*

## INTERVENTIONS

### Installation of Solar Water Heater for Hot Water Generator

#### Baseline Scenario

Hot water generator with a capacity of 3000 lt/day was consuming around 10800 liters of HSD per annum which costs around Rs. 5.08 lakh annually.

#### Recommendation

The unit was advised to replace the hot water generator by solar water heater and hot water generator could be used as a backup for rainy day.

#### Implemented Scenario

Based on the project's recommendation, the unit replaced HWG by solar water heater of same capacity

Newly installed system saves 10800 liters of HSD per annum.

The Investment of Rs.7 lakh made by the unit has resulted in monetary savings in energy cost of Rs.5 lakh per year with simple payback period of 17 months.

#### Leakage Reduction in Compressed Air Line

The underground compressed air pipe line was rusted and leakage was observed at many places. As suggested, the unit has replaced the entire 45m compressed air line. This has helped the unit to avoid any air leakages and reduce energy consumption.

#### Voltage Optimization for Single Phase Load

The average line to neutral voltage of the unit was 224.3 V. With the suggested recommendation, the unit has installed a servo stabilizer on single phase feeder to maintain voltage at 210 V. This has resulted in an annual energy saving of 1584 kWh of electricity, equivalent to about Rs. 13,000 per year with simple payback period of 41 months.

#### Support provided under the Project

- Walk Through & Detailed Energy Audit
- Identification of Energy Efficiency Interventions in the unit
- Finalization of the specifications for the Energy Efficiency Interventions
- Identification of technology providers/vendors
- Facilitation for an interactions between the unit and technology providers;
- Technical support during commissioning
- Monitoring & Verification

**Disclaimer:** This case study has been compiled by TERI on behalf of SIDBI under WB GEF Project. While every effort has been made to avoid any mistakes or omissions, any agency would not be in any way liable to any person by reason of any mistake/ omission in the publication.

#### For Further Information please contact at

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